M-SERIES

EDIROL Digital Mixers

Product Guide

M-16DX
16CH DIGITAL MIXER

M-10DX
10CH DIGITAL MIXER

M-10MX
10 CHANNEL MIXER

EDIROL
by Roland

All of the advantages of a digital mixer in a compact unit.
The new EDIROL M series, delivering high-quality mixing environments.

M-SERIES
EDIROL Digital Mixers

The true role of an audio mixer is to faithfully capture sound and allow you to make it even better.

The features of the EDIROL M series are aimed at fulfilling two goals: to provide intuitive operation that lets even the beginner perform serious mixing, and to provide high audio quality and full functionality to satisfy the professional.

Completely digital ▶▶ P.04

From audio input to audio output, all processing is fully digital, with 24-bit 96 kHz support for ultra-high quality.

Creating the optimal mixing environment ▶▶ P.06

The newly developed Room Acoustic Auto Control feature analyzes the acoustic response of your home studio, and automatically optimizes the output signal accordingly.

Analog-like operability ▶▶ P.08

Operation is as intuitive as it is with an analog mixer —you can directly control the sound of each channel using physical controls such as the dedicated three-band EQ knobs. Your actions appear on the graphic LCD display.

The EDIROL M series is a new concept that brings together proprietary Roland/EDIROL know-how and cutting-edge digital technology that will bring your home studio to a new level.

M-16DX
16CH DIGITAL MIXER

A new style of 16-channel digital mixer with separate Mix controller and I/O module

M-10DX
10CH DIGITAL MIXER

A compact all-in-one 10-channel digital mixer that can be operated on batteries, yet inherits the major functionality of the M-16DX

M-10MX
10 CHANNEL MIXER

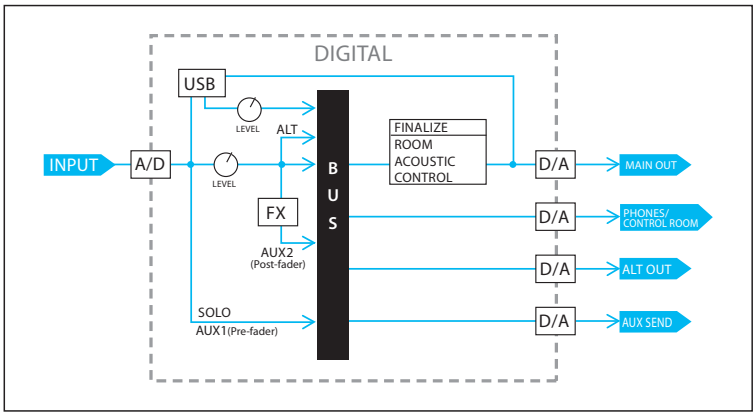
A 10-channel analog mixer with digital output that can be operated on batteries and is ideal for mobile use

01

In order to bring out the full potential of an instrument, quality is demanded of an audio mixer. It must reproduce the full range of frequencies from low to high without faltering, and needs dynamic range that can express everything from a subtle whisper to a powerful roar.

The M-16DX/M-10DX use cutting-edge digital technology to fulfill these exacting requirements.
We have also included numerous original ideas derived from Roland/EDIROL's years of experience in making audio mixers. Experience the enjoyment of mixing with the kind of sparkling fidelity available only with a digital mixer.

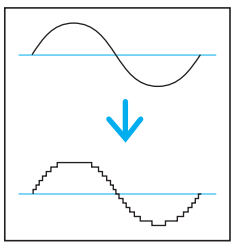
"Full digital"—the key to spectacular hi-fidelity sound
The astounding presence delivered by 24-bit/96 kHz audio raises the quality of your sound to a new level



Signal Flow

Bit depth/Sampling frequency

An analog audio wave is generally represented by a continuous line called a "waveform." By measuring its level at regular intervals of time and recording these values as a set of vertical gradations, we get a shape that represents the digital audio signal. The horizontal interval is the sampling frequency (expressed in Hz), and the vertical intervals are determined by the bit depth (the number of bits used to quantize each sample). Using higher sampling frequencies and a greater number of bits will allow the recorded digital signal to more faithfully represent the original waveform. Music CDs are recorded as 16-bit 44.1 kHz digital audio.



Glossary

BUS

A bus is a signal route that combines the signals of multiple channels within the mixer, and sends the combined signal to a common destination output. The M-16DX has four buses: MAIN, ALT, AUX, and SOLO. (→p.8 "Glossary")

Pre-fader/Post-fader

"Pre-fader" refers to the signal before it passes through the channel level control, and "post-fader" refers to it the signal immediately after the channel level control. Since the pre-fader signal is not affected by pan or channel level, it is often used when sending the signal to a multi-track recorder or to the stage monitors.

COSM technology

COSM (Composite Object Sound Modeling) technology This is proprietary Roland modeling technology that analyzes and simulates the effect that the electrical circuitry, structure, and materials of instruments or audio equipment have on a sound.

A completely new concept, separating I/O from controls

The M-16DX is a two-piece system consisting of the Mix controller (control desk) you use for mixing, and the I/O module (connector box) to which you connect your mics, instruments, and recording equipment. The compact I/O module can be mounted in a 1U rack space, allowing you to keep the cables together to maintain an uncluttered space around your mixer, providing you the freedom to work even if space is limited.
The front panel of the I/O module provides frequently-used connectors such as XLR mic jacks and Hi-Z jacks for guitar/bass, making it easy to change your system as appropriate for the song or situation. A headphone jack and an input jack for portable audio devices are provided on the Mix controller. The entire system is designed with working efficiently in mind. Since the power supply is provided from the I/O module, you can be free to mix from any physical position without being concerned with wiring.

* Photo is for illustrative purposes only – only one I/O module per M-16DX packge.

The convenient Scene Memory function, available only on digital mixers

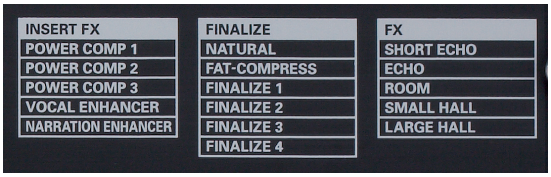
Mixer settings—including effect settings—can be stored as one of eight "scenes." These scenes can be instantly recalled at any time for different songs or production styles.

24-bit 96 kHz support for mixes of astounding realism

Full-digital 24-bit 96 kHz processing far exceeds CD quality. The much greater bit depth and sampling rate mean that you can apply effect processing and adjust the balance without impairing the quality of the input sound or introducing noise. The sound is the professional quality you expect from a digital mixer with DSP.

High-quality built-in effect processors to enhance your sound

Tighten up the sound, give it more power, make it sound great—whatever you need to do, the dedicated built-in effects are there to help. Operation is simple, but provides tremendous sound-creating freedom.



Insert effects

These are COSM technology powered effects dedicated specifically to vocals and narration, and can be applied to Channels 1 and 2. Five types are provided, including the "POWER COMP" that simulates the character of vacuum tubes to make your vocals more richly expressive, and the "VOCAL ENHANCER" that gives your voice brightness and presence. And even through the effects are aimed at vocal production you can try them on any mic music– you will be amazed at the sounds produced.

FX (Echo/Reverb)

This effect simulates the acoustic ambience of a real-world room or concert hall. Five types of reverb and two types of echo are provided. You can use each channel's AUX2/FX knob to adjust the depth of the effect, and the settings are remembered even when the power is turned off.

Finalize

This effect is applied to the final two-channel stereo mix in order to add the finishing touches to your sound. You can process the sound by boosting the overall loudness and/or making its dynamic variations and sonic character more consistent.

* When connected via USB, the Finalize effect is not available when the system is operating at the 96 kHz sampling frequency.

Expand the potential of your mixer by linking with your computer

The I/O module provides a USB 2.0 connector. Simply use a USB cable to connect this to your computer, and audio signals from your computer can be processed by the M-16DX's internal effects, or the sound mixed by the M-16DX can be sent to your computer for recording.
The M-16DX is bundled with the Cakewalk SONAR LE music production DAW software, so you can immediately start integrating your computer into your song production, recording, and live performances.

Example 1: Using the M-16DX as a Multi-Channel Audio Interface

The M-16DX's 16 channels + two-channel master mix—a total of 18 channels—can be brought into your DAW software as independent tracks. You can use the M-16DX as a multi-channel audio interface that supports both Windows and Macintosh systems.

Example 2: Mix Sounds from Your DAW Software with a Live Performance

Backing tracks you created on your DAW software can be sent to the M-16DX via USB, and mixed with the live performance of your band. The final-mixed sound from the main output can then be recorded directly into your DAW software as a live recording.

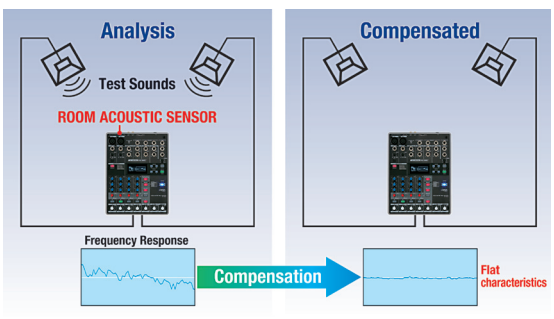
02

Are the speakers you normally listen to at home really telling you the truth? In many cases, the answer is "no." Everybody wants to listen to music as you like it to sound. But when you're mixing, it's very important for monitoring to be accurate, so that you're hearing the sound as it really is. By using the Room Acoustic Auto Control system built into the M-16DX/M-10DX, you'll be able to monitor your sound accurately simply by pressing a button.

Room Acoustic Auto Control — new technology that automatically compensates for the acoustic character of your home studio

New intelligent functions born from an uncompromising attitude toward sound

Most speakers have certain idiosyncrasies that are unique to that model of speaker. Unlike a professional studio that is designed for ideal acoustics, it is difficult to obtain an acoustically flat playback environment in a home studio. If you mix in a playback environment that is not flat, there will be changes to the sound caused by irregularities in the acoustics of the room. For example, you might find that a mix that sounded powerful with a good bottom end at home may sound weak when it is played back in a live venue. This problem is addressed by the new Room Acoustic Auto Control feature found in the M-16DX/ M-10DX. This will automatically measure the acoustic response of your private studio and apply compensation to the speaker sound that instantly allows you to obtain a flat mixing environment.



Three simple steps to obtaining a flat response

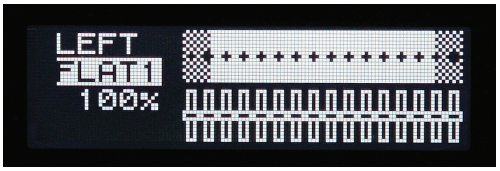
STEP1

Set your monitor speakers to the desired playback volume, and then press the [ROOM ACOUSTIC AUTO CONTROL] button.

[ROOM ACOUSTIC AUTO CONTROL] button

STEP2

Select the [FLAT1] response curve.

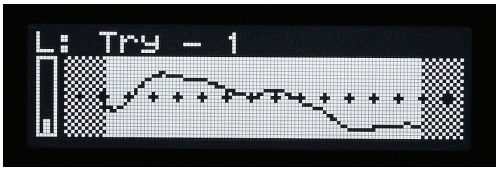


As the target response curves for compensation, you can choose from three types: FLAT, BUMPY, or WARMY. You can also create variations of these and save them.

STEP3

Hold down the [ROOM ACOUSTIC AUTO CONTROL] button for one second or longer to start the detection process.

* You can also use the internal mic as the room acoustic sensor.



When the sensor inside the Mix controller detects the test signal, the L-channel and then the R-channel will be automatically analyzed, and the result will appear in the screen.

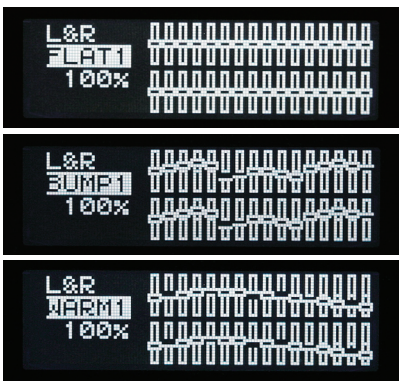
Using curves other than FLAT to take advantage of the Room Acoustic Auto Control

Adjusting the compensated result to create the desired response: manual adjustment

Depending on the character of the room or the location in which the analysis is performed, the compensation result may not necessarily be ideal in some cases. Alternatively, a flat response may not produce a perceptually desirable sound. In such cases, you can manually adjust the compensation result in a range of 70—130% to create the sound you need. The results of your adjustments are saved even when the power is turned off, and can be recalled at any time.

Instantly create "scooped" or "warm" sounds: using this function as a preset EQ

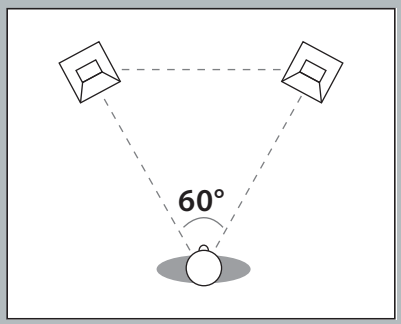
By adjusting the response curve manually, you can obtain not only a flat playback environment but also a "scooped" response that boosts the low and high ranges (BUMPY 1—4) or a rich and deep response curve that boosts the mid range (WARMY 1—4). A total of twelve curve settings you create can be saved, meaning that you can use the Room Acoustic Auto Control as a 12-preset equalizer.



Tips for creating a better monitoring environment in your home studio

Place the left and right monitor speakers at the height of your ears, and position your listening point so that you are at the third corner of an equilateral triangle whose other two corners are the two speakers. This is the basic setup. However in actuality, the shape of your room and the material of the walls and floor will affect the sound you hear, so you may need to make fine adjustments to the height or angle of the speakers. If the left and right speakers are not very far apart, it will be easier to make distinctions in the high-frequency and low-frequency ranges. If you move the speakers farther apart, the left/right positioning of sounds will be clearer.

When using Room Acoustic Auto Control, you will get the best results if the sensor is placed at the listening point.



03

High-quality audio. Full digital processing. Sophisticated functionality. These professional specifications sought by everyone are no longer limited to advanced practitioners. Even if you're using a digital mixer for the first time, you deserve to be able to control your sound intuitively and understandably. As a result of our pursuit of this goal, we've succeeded in joining the friendly usability of an analog mixer with the sophisticated functionality of digital processing. With their amazing quality and versatility, the M-16DX/M-10DX are powerful mixing tools for all musical creators.

M-16DX

LO CUT Switch

SENS Knob

3-band Knob

PAN Knob

AUX SEND Knob

SEL Button

FX/SOLO/ MUTE Switch

Channel LEVEL Knob

Analog-style control for a digital mixer. Advanced operability lets you quickly get the sound you want

Glossary

MAIN OUT

This outputs the final mixed sound.

ALT OUT

The post-fader signal of the channels whose MUTE (ALT) switch is on will be output from here.

AUX SEND 1,2

These are auxiliary output jacks that can be freely used as needed. They can be used as effect sends connected to external effect processors. AUX1 will output the pre-/ post-fader signal (selectable), and AUX2 will output the post-fader signal.

PHONES/ CONTROL ROOM

These are outputs used for monitoring. By turning a switch on or off, you can mix the signal from the ALT outputs or the sound processed by FX (echo/ reverb) with the signal of the main outputs that is sent out from these outputs. If you turn on the SOLO switch, the SOLO signal will be output from here.

Pre-fader/ Post-fader

(→p.4 "Signal flow (conceptual diagram)")

Graphic LCD display with superb view-ability to support detailed sound-creation

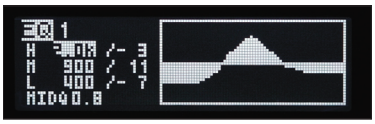
The M-16DX/M-10DX feature a 122 x 32 pixel backlit graphical LCD display that's clearly visible even on a dark stage. Even beginners will be able to easily check the input levels or operate the effects. When you control the EQ, the EQ curve will automatically appear in the display when you turn a knob, providing a visual indication of the sonic response as you make adjustments.

High-quality mic preamps for pristine mic recordings (M-16DX)

Precisely because digital mixers are so hi-fi, the quality of the analog section has an enormous impact on the sound. Channels 1—4 of the M-16DX provide high-quality mic preamps with phantom power. This allows you to use not only dynamic mics but also condenser mics to create high-quality mic recordings.

Three bands of analog-like EQ for quickly getting the sound you want

Each channel provides three-band EQ to adjust its sound. The high and low EQ are shelving types, that allow you to specify the frequency at which a boost or cut will occur. The mid is a peak-type with adjustable frequency (FREQ) and bandwidth (Q: steepness). You can create a gentle, warm sound by softly boosting the entire mid-range, or cut a specific frequency with pinpoint accuracy.



Hi-Z connectors for guitar/bass are a necessity for home recording

Channels 1 and 2 (for the M-10DX, Channel 1) provide a Hi-Z switch that lets you directly connect a guitar/bass. Even if you're at home late in the evening, you can play or record your guitar without cranking up your amp.

An array of input jacks give you the flexibility to meet any mixing challenge

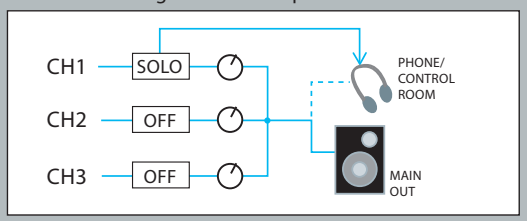
The input section provides XLR, TRS phone, and RCA phono input jacks. You can connect a variety of equipment including mics, instruments, and audio equipment to meet the needs of home recording, studio work, or live PA situations.

The M-16DX provides a digital input jack as well as a stereo mini jack located on the MIX controller. This can be used to connect an MP3 player or other portable audio player so you can mix your favorite music with your own performance.

Take advantage of the M-16DX's SOLO/MUTE (ALT) switch!

SOLO

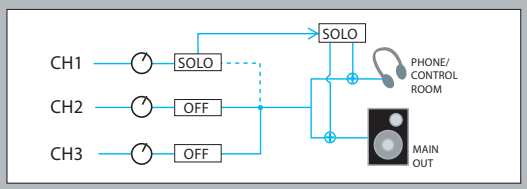
If this is on, just the pre-fader signal of that channel will be monitored via headphone or control room outputs, without affecting the main output.



[Example]
While you continue to mix normally, you can select a specific channel and monitor the state of its input signal for noise or level, etc. (→p.13 "Tips for setting the input level")

MUTE (ALT)

If this is on, the signal of that channel will be muted. However, by turning on the ALT switch provided for the main mix or for the headphone/control room knob, you can also mix or simply monitor this signal.



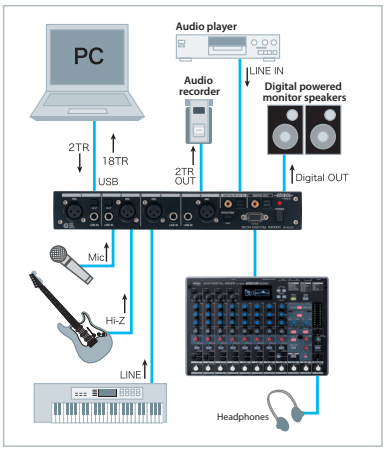
[Example]
Turn on a click channel's MUTE (ALT) switch and the headphone/control room ALT switch. In the headphones, you'll be monitoring the click mixed with the sound of the other channels, but the click will be muted in the main output.
(→p.11 "Taking advantage of the ALT bus")

01 Multitrack recording using your PC

Home recording system

The M-series is the ideal choice for home studio recording using DAW software such as SONAR. In particular, the M-16DX has a separate I/O module and Mix controller, making it easy to reconnect your mic or instrument cables during the multi-track recording process, and letting you operate the Mix controller on an uncluttered desktop. Since there are Hi-Z jacks for connecting your guitar/bass, you can record your guitar at home via a direct line connection until you're satisfied.

* The I/O Module is rack-mountable. Rack-mount adaptor is included in the M-16DX package.



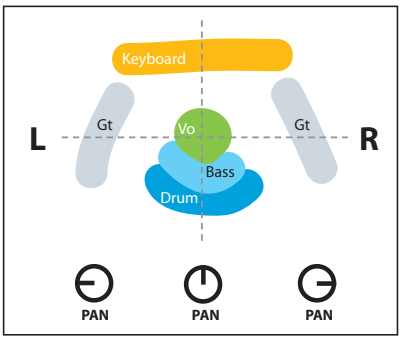
By combining the M-16DX with a DAW recording system, you'll be able to play back backing tracks created on your PC while recording your vocals or instrumental performance directly to the PC. Alternatively, you could back up your performance with sound from a karaoke CD, a rhythm machine, or a backing performance of drums that you recorded in stereo at an outside studio. The final sound processed by the Finalize function can be recorded to your PC, or you can use DAW software such as SONAR to perform multitrack recording of up to eighteen tracks (16 channels + two master channels).

Tips! Take advantage of the vocal effects!

Channels 1/2 let you apply a dedicated insert effect specifically designed for vocals and narration. "POWER COMP1–3" will apply the character of a vacuum tube amp used in professional recordings, giving your vocal greater presence. "VOCAL ENHANCER" will enhance the character of your voice, and you can use "NARRATION" to minimize unwanted sibilants (excessive "s" sounds) when recording spoken lines or narrations.

Tips! Use EQ to eliminate "mushy" sound!

To improve the clarity of each part, it's important to use EQ boost and cut in appropriate ways. If you want to improve the definition of a vocal, you can give the voice more body by using the MID EQ to apply a wide (low Q) boost at 1 kHz, while cutting the sound below 100 Hz to eliminate muddiness. On the channels for guitar, bass, and snare, cut the frequency ranges that would conflict with each other so that the most important element of each instrument is emphasized, thus ensuring that there is good separation between the sounds.



TRICKS! Cutting household noise when you record with a mic!

There are many sources of noise when recording at home, such as the refrigerator and air conditioner, or vibrations from passing vehicles. Normally we don't pay attention to these sounds, but when recording, they can be a major factor that impairs the clarity of the recorded sound. If the sound from a mic is lacking in clarity, try turning on the LO CUT switches provided on channels 1—4. This is also a useful thing to do if the vibrations from your foot tapping the rhythm on the floor are being transmitted through the mic stand and are getting recorded.

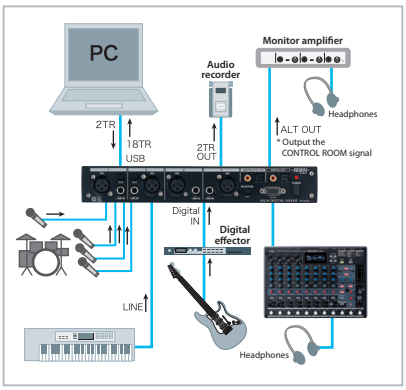
TRICKS! Apply reverb only to the monitor sound!

When recording a vocal, you will find it much easier to sing if there's just a bit of echo/reverb (FX) on your voice. However, recording the sound without the effect applied will make it easier at later stages of the mixing process. Turn the headphone/control room FX switch on. This will allow the unprocessed sound to be sent from the main out for recording while you apply echo/reverb just to the headphones for monitoring as you record.

02 Recording a band in a single pass

Studio recording system

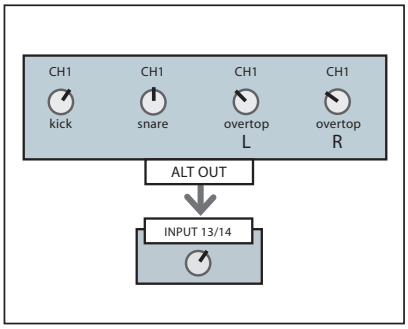
The M-16DX's superb potential will shine particularly when you're recording vocals or drums via mics in the studio. Phantom-powered channels 1–4 provide high-quality mic preamps, so you can make serious recordings with professional mics. By taking advantage of the headphone/control room, ALT, and AUX bus outputs, you can use the variety of outputs for recording or monitoring.



When mic-recording vocals, guitar amp, and drums in a studio, setting the MIX controller's function switch to "NARROW" will allow you to adjust the SENS setting of each mic in greater detail. If you're using a digital multi-effect unit, we recommend using a digital connection, since this will allow you to take full advantage of the effect processor. If you connect the main output to your large speakers and the AUX send to your monitor speakers, you can use the setup as a simple PA system.

Tips! Use the ALT bus for multi-track drum recording!

If you're recording the drums with four mics—kick, snare, and stereo overhead—and you want to raise or lower the drum volume, you'll need to move all four channel levels. However, if you turn the MUTE (ALT) switch on for these four channels to send them to the ALT bus, and then return the ALT bus in stereo to Channels 13/14 or 15/16, you'll be able to use a single knob to adjust the entire drum kit's volume while preserving the balance between its mics.



Tips! Add punch to the vocals and drums of an existing stereo mix!

By using the POWER COMP3 insert effect, you can improve the punchiness of the vocals and drums in a stereo mix that's already been recorded. Start by setting BRIGHT and COMP to zero, and then use BRIGHT to adjust the clarity of the vocal. Then use COMP to improve the tonal character of the drums. This will boost the overall high-frequency range, so you'll probably want to reduce BRIGHT a bit when you're finished. Don't go overboard—keeping it sounding natural is the key.

TRICK! Use PAN to let each part be heard clearly!

PAN specifies the stereo position of a sound, and lets you create differentiation between parts in a way that would be difficult to achieve using just the volume balance or EQ. For example, if you want to emphasize guitar chords but don't want to increase their volume, you can place them to one side in order to make them easier to hear. Even if you have two sounds that you want to be heard in the center, panning one of them slightly away from the center will still create a sense of differentiation while giving the impression that they are both still in the center.

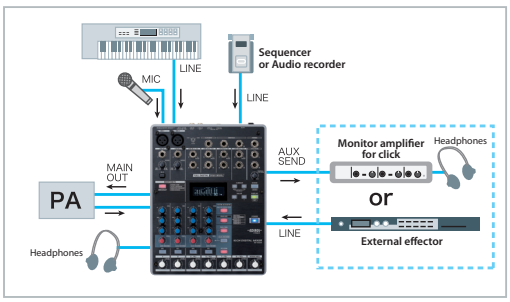
TRICK! Take advantage of different outputs for stereo mixes and multi-track recording!

If you're making a single-pass recording of your band, connect the main output or two-track output to your recorder, and record the mixed sound. On the other hand, if you'll be using your DAW software to mix later, record the pre-fader signal from USB out. This will allow each part to be recorded at its optimal level, unaffected by any adjustments to the volume or panning that you might have made for convenience while performing. You can also use the ALT out and AUX send to record only specific parts on your recorder.

03 Sub-mixer for a live stage performance

Live mixing system

Simple, yet multi-functional and highly mobile, the M-10DX is an ideal choice as a sub-mixer used for combining the outputs of your synthesizer, sound modules, and sequencer during a live performance. The M-10DX is also a great tool for creating unusual setups that might be difficult to manage in a live situation. For example, you can connect mics and external effect units to create processed vocals, and then send the completed sound to the main PA system. Since the M-10DX can be operated on batteries, it's also convenient for use in street performances.



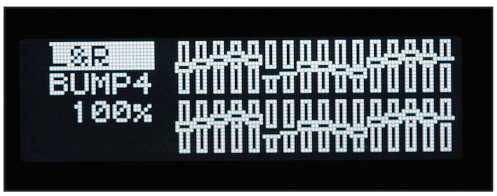
In addition to bringing together your keyboard, sequencer, audio player, and other audio sources, the M-10DX lets you create performances that use mics and external effect processors for additional impact. Even sophisticated setups that are difficult to achieve in a live situation can be created by using the M-10DX as a sub-mixer, allowing you to make your own adjustments to the sound, and then output the finished sub-mix to the PA.

Tips! Battery operation for a small footprint!

The M-10DX is a mere 20 cm—about the size of a B5 sheet of paper—wide making it an all-in-one mixer that won't take up space on stage. Since it can be operated on batteries, it's also a convenient choice for outdoor use. The backlit graphic LCD display and the illuminated buttons mean that you'll always be able to check and adjust the channel settings even if the stage is dark.

Tips! Tune your backing sound to match the performance venue!

It is often the case that your carefully constructed backing or synthesizer sound does not sound the same when it's played through a PA at your live performance. In such cases, you can use the Room Acoustic Auto Control feature to easily flatten the output signal or create a "scooped" sound that boosts the low and high frequencies. You can also create a favorite response curve ahead of time, and use it as one of sixteen preset EQ settings to get the best possible sound at your performance venue.



Tricks! Listen to a click while you record, or perform along with a synchronized backing!

The M-10DX also makes it simple to create a system for sending a click to the drummer. Input the click and backing to Channels 1/2, and play them back. Raise the AUX send for both and send the AUX send to the monitor headphones or amp so that the drummer can play to both the click and the backing. In this setup, you can set the channel level of the click to zero so that only the backing is sent to the PA, and not the click.

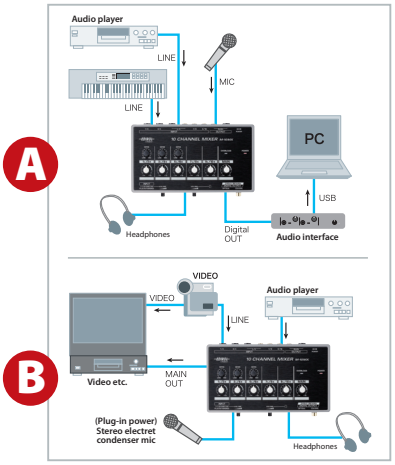
Tricks! Switch mixer settings for each song!

The tone, level, and effect on/off settings of each audio source—such as each synthesizer, sampler, and sequencer—will typically need to be adjusted for each song in a live performance. This is where you can take advantage of the Scene feature. You can store up to eight different sets of mixer settings, and then instantly switch the mixer settings simply by holding down the SCENE button for one second or longer and choosing a program number. This is a great feature that's available only on a digital mixer.

04 Expanding the inputs of your audio interface

DAW recording system

The M-10MX is an analog mixer that packs analog inputs and digital output into a compact body. You can use it as an input expansion tool for EDIROL's FA and UA series of audio interfaces, or on its own as a line mixer. Operation is simple and does not require specialized knowledge, making it a flexible solution for a variety of needs ranging from PC-less audio editing to a sub-mixer for a DAW recording system.



If your audio interface does not have a large number of input jacks, you can use the M-10MX as an expansion mixer so you won't need to re-connect mics, synthesizers, and rhythm machines each time you record—just record directly to your PC when inspiration strikes. In addition to having the convenience of being able to directly control the volume balance of each instrument at your fingertips, the M-10MX also provides a high-quality digital output, in spite of its compact size. By digitally connecting this to your audio interface, you can enjoy the superb audio quality of 24-bit 96 kHz recording.

SET A Input expansion for your audio interface (DAW recording system)

If you use the M-10MX as an expansion mixer for an audio interface that doesn't have a large number of input, you can avoid having to disconnect and reconnect your mic, synthesizer, and rhythm machine each time you record a different track --- simply record onto your PC the moment that inspiration strikes you. In addition to the convenience of fingertip control over the volume balance of your equipment, the M-10MX provides a digital output in spite of its compact size, so you can digitally connect this to your audio interface for high-quality 24-bit 96 kHz recording.

SET B Computerless Mixing music and audio for video without a computer (Mobile recording system)

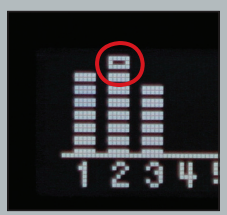
The M-10MX is a handy tool for outdoor recording or when mixing audio for video. Since it provides five stereo inputs, you can connect your familiar video or audio device and microphones, and then connect the main output directly to your HDD or DVD recorder to mix background music and narration without needing to use a computer. Since the mic jack supports plug-in power, you can use stereo electret condenser mics.

How to set the input levels

By setting the input level appropriately, you'll be able to mix with minimal noise and without causing the original sound to distort.

[On the M-16DX/M-10DX]

Press the DISPLAY button, and the display will show each channel's pre EQ input level (the level before passing through EQ). Adjust the SENS knob for the channels you're using, or the output of your external device, so that the top □ symbol of the level meter does not light when the maximum volume occurs.



* On the M-16DX, you can use the following method to check a channel's input level while you're mixing.

1: Turn the channel's SOLO switch on.
2: Input the signal.
3: For Channels 1—4, adjust the channel's SENS knob so that the orange indicator (+10 dB) of the level meter located at the right edge of the panel lights briefly when the maximum volume occurs. For Channels 5/6—11/12, adjust the output level of the external device.

[On the M-10MX]

Set the MAIN level knob and the level knob of the channel whose input level you're checking to the unity gain position. Lower the levels the other channels all the way. Adjust the SENS knob or the output of your external device so that the OVERLOAD indicator lights briefly when the maximum volume occurs.

* Unity gain:
This is the position of the channel level knob marked by the "U" symbol (on the M-10MX, the area emphasized by the bold white line), indicating the point at which the input signal is output at the same level.

M-SERIES
EDIROL Digital Mixers

M-16DX
16CH DIGITAL MIXER

A high-level fusion of digital audio quality and analog operability
A new form of digital mixer featuring a separate system.

M-16DX Mix Controller

M-16DX I/O Module

Separate system with MIX controller and I/O module
This system separates the MIX controller containing the mixing controls and the I/O module to which your instruments are connected. Cable connections are consolidated into the compact 1U rack-mountable I/O module, allowing highly flexible mixing on your desktop.

Newly-developed Room Acoustic Auto Control function automatically compensates for the frequency response of your studio
An internal sensor and sound generator are used to analyze the frequency response of your monitor speakers and room, and adjust the output in order to obtain the desired acoustic character. By letting you work with the ideal frequency response, this enables you to mix under stable and consistent conditions.

Full-digital processing at 24-bit 96 kHz quality with analog-like operability
24-bit 96 kHz processing gives you a level of audio quality that will satisfy the needs of even a professional recording setup. A full complement of controllers including 3-band EQ, PAN, AUX, SELECT, SOLO/MUTE, and LEVEL lets you operate the system as easily as a familiar analog mixer.

USB2.0 provided for multi-channel recording into DAW software
By connecting the M-16DX to your computer via USB 2.0, you'll be able to perform multi-track recording into your DAW software with up to 16 channels plus a two-channel master mix. The M-16DX can function as a multi-channel audio interface compatible with Windows or Mac.

High-performance options for wide-ranging music production support

AUDIO INTERFACES

●UA-1EX <EDIROL>
24-bit/96 kHz high fidelity audio in a compact body

●UA-25 <EDIROL>
Compact, high performance audio interface at its best

MONITOR SPEAKERS

DS-8 DS-7 DS-5

●DS-8/DS-7/DS-5 <Roland>
Superb sound quality with precise imaging and balanced energy output
24-bit digital input with sample-rate support for up to 192kHz

●MA-15DBK <EDIROL>
High performance desktop monitors in wooden cabinets

●MA-7ABK <EDIROL>
Affordable desktop monitors in wooden cabinets

The advantages of a digital mixer in a compact package. An all-in-one model with excellent mobility.

M-10DX
10CH DIGITAL MIXER

Rich functionality that inherits the M-16DX's basic features
The M-10DX is an all-in-one digital mixer that provides the major functionality of the M-16DX, such as the Room Acoustic Auto Control function, the graphical LCD display, and effect processors.

Versatile input jacks to meet the needs of any situation
Ten input channels are provided, and Channels 1/2 have phantom-powered mic input jacks. Channel 1 also provides a Hi-Z switch so that mics, line-level instruments, or guitars/basses can be connected.

Uncompromising sound quality to satisfy the professional
The high-quality sound delivered by full the digital processing can be sent from the digital output with 24-bit 96 kHz support. Main output, headphone/control room, and an AUX send are also provided.

Mobility for studio or live performance
In addition to providing all of the functionality required by an audio mixer, the M-10DX can be operated using either an AC adaptor or battery power. You can take advantage of its mobility not only for recording, but also for using it as a sub-mixer in live stage performances.

Simple and easy to use. A portable analog mixer that's ideal for the home studio

M-10MX
10 CHANNEL MIXER

Ten inputs and two outputs meet a broad variety of needs
The M-10MX provides ten inputs (five stereo inputs) with phone and RCA phono jacks, and two output jacks. The front panel has a mini stereo jack that supplies plug-in power, allowing the use of an EDIROL CS-15 or other stereo mic.

Digital output for studio use
A digital output jack that supports 24-bit 96 kHz audio is provided. You can enjoy high-quality sound by connecting this directly to a set of monitor speakers that accepts a digital input, or use the M-10MX to expand the inputs of your audio interface.

Compact design that won't take up space on your desktop
With a compact size that can be used together with the EDIROL FA/UA series, the M-10MX can be used with your audio interface without cluttering your desktop.

Portable model allows battery operation for excellent mobility
Power can be supplied from an AC adaptor or from four AA batteries. By operating the unit on batteries, you can use it anywhere, for outdoor video recording or any other situation.

●DR-50 <Roland>
Hyper cardioid handheld dynamic microphone

●DR-30 <Roland>
Cardioid handheld dynamic microphone with shock-absorption for reduced handling noise

MICROPHONE STAND

●ST-100MB <Roland>
Lightweight-yet-sturdy stand for mics, R-09, and More

MICROPHONES

●DR-80C <Roland>
Large diaphragm studio condenser microphone (26 mm diameter) for high-quality sound

●CS-15 <EDIROL>
For when you need even more advanced recording than R-09's built-in microphone

DX BUS CONNECTION CABLE

●DXC-7 <EDIROL>
Optional 7 meter (23 feet) long connection cable for M-16DX

●RH-A30 <Roland>
Contains a newly developed 45mm driver with neodymium magnet for a full dynamic range and stable output, even on large input surges

●RH-300 <Roland>
Newly developed 45mm driver with neodymium magnet offers full dynamic range and stable output, even on large input surges

HEADPHONES

●RH-200 <Roland>
Professional stereo headphones with exceptional clarity and accuracy

Specifications	M-16DX	M-10DX	M-10MX
Number of Input Channels	16 channels	10 channels	10 channels
AD/DA Conversion	Sample Rate: 44.1/48.0/96.0 kHz Signal Processing: 24 bits	96.0 kHz: 20 Hz to 40 kHz (+3/-3 dB), 48.0 kHz: 20 Hz to 22 kHz (+3/-3 dB), 44.1 kHz: 20 Hz to 20 kHz (+3/-3 dB)	Sample Rate: 44.1/48.0/96.0 kHz, Signal Processing: 24 bits
Frequency Response	96.0 kHz: 20 Hz to 40 kHz (+3/-3 dB), 48.0 kHz: 20 Hz to 22 kHz (+3/-3 dB), 44.1 kHz: 20 Hz to 20 kHz (+3/-3 dB)	—	96.0 kHz: 20 Hz to 40 kHz (+1/-2 dB), 48.0 kHz: 20 Hz to 22 kHz (+1/-2 dB), 44.1 kHz: 20 Hz to 20 kHz (+1/-2 dB)
Residual Noise Level (IHF-A, typ.)	MAIN MIX LEVEL knob = -∞, Channel LEVEL knobs = -∞, MAIN MIX LEVEL knob = U, Channel LEVEL knobs = -∞: -96 dBu, MAIN MIX LEVEL knob = U, Channel LEVEL knobs = U: -83 dBu	MAIN MIX LEVEL knob = -∞, Channel LEVEL knobs = -∞, MAIN MIX LEVEL knob = U, Channel LEVEL knobs = -∞: -88 dBu, MAIN MIX LEVEL knob = U, Channel LEVEL knobs = U: -82 dBu	-86 dBu
Nominal Input Level	MIC connectors 1–4: -60 to -10 dBu, LINE IN jacks 1–4: -40 to +10 dBu, * Maximum input level: Nominal input level + 22 dB, LINE IN jacks 5–16: +0 dBu, LINE IN jacks 15–16 (RCA pin type, Stereo miniature phone type): -10 dBu, * Maximum input level: Nominal input level + 18 dB	MIC connectors 1–2: -60 to -10 dBu, LINE IN jacks 1–2: -40 to +10 dBu, * Maximum input level: Nominal input level + 22 dB, LINE IN jacks 3–10: +0 dBu, LINE IN jacks 9–10 (RCA pin type): -10 dBu, * Maximum input level: Nominal input level + 18 dB	Input Jacks 1–6: -50 to +4 dBu Input Jacks 1–2: -40 to +10 dBu Input Jacks 5–10: -2 dBu * Maximum input level: Nominal input level + 12 dB
Input Impedance	MIC connectors 1–4: 1.5 kΩ, LINE IN jacks 1–4: 20 kΩ, LINE IN jacks 5–16: 20 kΩ, LINE IN jacks 15–16 (Stereo miniature phone type): 14 kΩ	MIC connectors 1–2: 2.7 kΩ, LINE IN jacks 1–2: 28 kΩ, LINE IN jacks 3–8: 20 kΩ, LINE IN jacks 9–10 (RCA pin type): 20 kΩ	—
Nominal Output Level	MAIN OUT jacks/ALT OUT jacks/AUX SEND jacks 1–2: +0 dBu, 2 TRACK OUT jacks L–R: -10 dBu, CONTROL ROOM jacks: -6 dBu, * Maximum output level: Nominal Output Level + 22 dB	+0 dBu * Maximum output level: Nominal Output Level + 22 dB	-2 dBu * Maximum output level: +10 dBu
Output Impedance	MAIN OUT jacks/ALT OUT jacks/AUX SEND jacks 1–2: 600 Ω, 2 TRACK OUT jacks L–R: 1 kΩ	—	—
Recommended Load Impedance	10 kΩ or greater	10 kΩ or greater	—
Display	Graphic LCD 122 x 32 dot (with back-light)	Graphic LCD 122 x 32 dot (with back-light)	—
Connectos	**(I/O module)** MIC connectors 1–4: XLR type (balanced / phantom power +48 V), LINE IN jacks 1–14: 1/4 inch TRS phone type (balanced), * LINE IN jacks 1–2: supports use of hi-impedance, LINE IN jacks 15–16: RCA pin type, MAIN OUT jacks L–R: 1/4 inch TRS phone type (balanced), ALT OUT jack L–R: 1/4 inch TRS phone type (balanced), AUX SEND jacks 1–2: 1/4 inch TRS phone type (balanced), 2 TRACK OUT jack L–R: RCA pin type, DIGITAL INPUT jack/connector: Optical type, Coaxial type, DIGITAL OUTPUT jack/connector: Optical type, Coaxial type, USB Connector, DX BUS Connector: D-SUB 15 pin **(MIX controller)** LINE IN jacks 15–16: 1/4 inch phone type (unbalanced), Stereo miniature phone type, PHONES jack: Stereo 1/4 inch phone type, CONTROL ROOM jacks L–R: 1/4 inch phone type (Impedance balanced), DX BUS Connector: D-SUB 15 pin	MIC connectors 1–2: XLR type (balanced / phantom power +48 V), LINE IN jacks 1–10: 1/4 inch TRS phone type (balanced), * LINE IN jack 1: supports use of hi-impedance, LINE IN jacks 9–10: RCA pin type, MAIN OUT jacks L–R: 1/4 inch TRS phone type (impedance balanced), AUX SEND jack: 1/4 inch TRS phone type (impedance balanced), 2 TRACK OUT jacks L–R: RCA pin type, DIGITAL OUTPUT jack/connector: Optical type, Coaxial type, PHONES jack: Stereo 1/4 inch phone type, CTRL ROOM jacks L–R: 1/4 inch phone type (impedance balanced)	Input Jacks 1–6: 1/4 inch phone type, unbalanced, Input Jacks 1–2: Stereo miniature type, plug-in powered), Input Jacks 5–10: RCA pin type, Main Output Jacks L, R: 1/4 inch TRS phone type (impedance balanced), RCA pin type, Digital Output Connectors: Optical type, Coaxial type, Headphone Jack: Stereo miniature type, DC IN (AC adaptor) Jack
DSP processing	Room Acoustic Control (Built-in Microphone), 16 Band Graphic EQ, Finalize: Enhancer/Multi-band Compressor-Limiter, Insertion effects: Power compressor/Vocal enhancer/Narration enhancer, Echo/Reverb: Short echo/Echo/Room reverb/Small hall reverb/Large hall reverb	Room Acoustic Control (built-in microphone), Finalize: Enhancer/Multi-band Compressor-Limiter, Insertion effects: Power compressor/Vocal enhancer/Narration enhancer, Echo/Reverb: Short echo/Echo/Room reverb/Small hall reverb/Large hall reverb	—
Number of USB Audio Record/ Playback Channels	Record: 18 channels, Playback: 2 channels, Full duplex, * When using the mixer as a USB audio interface, the Finalize effects are not available in 96 kHz mode.	—	—
Power Supply	DC 9 V (AC adaptor)	DC 9 V (AC adaptor), Alkaline dry battery LR6 (AA) type x 8 or Nickel metal-hydride battery (HR15/51) x 8	DC 9 V (AC adaptor), Alkaline dry battery LR6 (AA) type x 4
Current Draw	1.4 A	950 mA, * Expected battery life under continuous use: Nickel metal-hydride: 3 hours, Alkaline: 1.5–2 hours, These figures will vary depending on the actual conditions of use.	250 mA * Expected battery life under continuous use: Alkaline: 6 hours (Power save mode: On), 4 hours (Power save mode: Off), These figures will vary depending on the actual conditions of use.
Phantom Power	+48 V/5 mA (each input)	+48 V/5 mA (each input)	—
Accessories	Owner's manual, Read this first/M-16DX driver installation (driver installation manual), Controller cable (D-SUB 15 pin, 2 m), USB cable, Driver CD-ROM, SONAR LE CD-ROM, AC Adaptor, Rack-mount adaptor, Rubber feet (I/O module), Roland software license agreement	Owner's manual, AC adaptor	Owner's Manual, AC Adaptor, Ferrite Core
Option	Controller cable: DXC-7 (D-SUB 15 pin, 7 m)	—	—
Size and Weight	**(I/O module)** 280 (W) x 219 (D) x 44 (H) mm 11-1/16 (W) x 8-5/8 (D) x 1-3/4 (H) inches 1.6 kg, 3 lbs. 9 oz. **(MIX Controller)** 311 (W) x 216 (D) x 46 (H) mm 12-1/4 (W) x 8-1/2 (D) x 1-13/16 (H) inches 1.2 kg, 2 lbs. 11 oz.	199 (W) x 262 (D) x 61 (H) mm 7-7/8 (W) x 10-3/8 (D) x 2-7/16 (H) inches 1.3 kg, 2 lbs. 14 oz.	181.2 (W) x 107.5 (D) x 54.0 (H) mm 7-3/16 (W) x 4-1/4 (D) x 2-1/8 (H) inches 393 g, 14 oz

M-16DX	
System Requirements [Windows]	
Operating System	Microsoft® Windows® XP Home Edition Service Pack 2, Microsoft® Windows® XP Professional Service Pack 2, Microsoft® Windows Vista™ * This does not work with the 64-bit Edition of Windows Vista™.
Computer	Windows XP or Windows Vista compatible computer with a USB connector that supports USB Specification Revision 2.0 or higher * Intel chipset is recommended. * M-16DX's USB Audio Interface may not perform to its full specs when used with Celeron or Intel compatible processors. * When using an added USB 2.0 interface card, such as a PCI card, "NEC PCI to USB Enhanced Host Controller" is recommended.
CPU/Clock	Pentium 4 Processor / 1.6 GHz r higher, Pentium M Processor / 1.3 GHz or higher
Memory (RAM)	512 MB or more * In case of Windows Vista, 1 GB RAM or more is recommended.
System Requirements [Macintosh]	
Operating System	Mac OS X v10.4.3 or later * The driver can work on both Intel processors and PowerPC processors (Universal Binary). * This will not operate in the Classic environment of Mac OS X. When using this, the Classic environment must not be running simultaneously.
Computer	Apple Macintosh series computer with on-board USB 2.0

* Please remember that multitrack recording at higher bit rate and sampling frequencies may require large amounts of free disk space and fast hard drives.

* This product has been tested on representative computers that meet the system requirements, but we cannot guarantee that it will operate on every computer that meets these requirements. Please be aware that even under the same conditions, differences in the operating environment may produce differences in processing capability.

EDIROL by Roland

Please contact EDIROL distributor in your country,
or visit us online at www.EDIROL.net

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